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Chemetco  
SF / tech

# Estate of Chemetco, Inc.

3754 Chemetco Lane • Hartford, IL 62048  
Office: (618) 254-4381 • Fax: (618) 254-0138  
www.chemetcoestate.com

EPA Region 5 Records Ctr.



347284

December 18, 2007

Tom Powell  
Office of Emergency Response  
Emergency Operations Unit  
IEPA  
2009 Mall Street  
Collinsville, IL 62234

John Waligore  
Office of Emergency Response  
Emergency Operations Unit  
IEPA  
1021 North Grand Avenue East  
P.O. Box 19276, Mail Drop #29  
Springfield, IL 62794-9276

Subject: Casual Factors Investigation and Corrective Actions Report  
IEMA Incident 20071413  
Hartford, Madison County, Illinois

Dear Mr. Powell and Mr. Waligore:

FILE COPY

## *Description of the Incident*

At some time during the weekend of October 20 and 21, 2007 the South Stack of the former air emissions control system (AAF System) at the former secondary copper smelter site in Hartford, Madison County, Illinois collapsed. The stack collapsed to the northwest and landed on existing ductwork. The stack caused some minor damage to the duct work (See photos, Attachment A, and location on AAF System drawing, Attachment C.). The collapsed stack appears to have flattened during the impact and it is estimated that approximately two 55-gallon drums of scrubber sludge/iron scale mixture (< 1200 pounds) was released due to the collapse (Scrubber Sludge, MSDS, Attachment D, is the former emissions exhaust from the smelters and is a hazardous substance due to the presence of lead and cadmium.).

In addition, the weld failure on the Center Stack (Photo # 6, Attachment A and Photos # 1, 2, and 3, Attachment B) between the stack and the base, same area as failure on South Stack, appears to have been damaged by the collapse and is now almost halfway around the stack. The collapse also appears to have made the structural integrity of the other stack worse. The Estate notified the Illinois EPA of the collapse as soon as observed on October 22, 2007, Incident Report No. H2007-1413.

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REVIEWER MD

IEPA-BOL-FSRS

## ***Background***

On October 31, 2001, Chemetco, Inc. shutdown and filed for Chapter 7 Bankruptcy on November 13, 2001. Since that date the site (Estate of Chemetco, Inc.) has been under the control of a Trustee. Originally, the Chemetco site had four stacks (drawing, Attachment C). Over thirty years of operations and the corrosive nature of Scrubber Sludge, pH 9-10, have caused the carbon steel stacks to have thin walls which have resulted in numerous stress fractures and weld breaks (photos, Attachments A and B). Even though connected by wire cables, the 120-foot high stacks have been subjected to various wind loadings and weathering and have been a concern to the Estate. In 2005 the northern most stack was removed down to its base using a high boom crane from the north side of the AAF System to prevent collapse and even allowed the Scrubber Sludge/iron rust mixture to be deposited inside the remaining base. The other three stacks were located inside the congested AAF System of exhaust ducts, piping and buildings and not safely accessible (see Photo #7, Attachment A and drawing Attachment C).

The Estate had started an effort in September 2007 to demolish the AAF System so the stacks could be safely removed. Due to contractor compliance and other issues, this effort was shutdown on September 11, 2007 and is not expected to be resumed until warm weather, probably in later February or early March. In the meantime, the two remaining stacks have become more unstable and due to concerns with them falling on caustic tanks to the east or the surrounding buildings, on October 23, 2007 the Estate requested IEPA (Attachment E) to grant permission to collapse the remaining two stacks to perform controlled collapse of the stacks. IEPA approved the controlled collapse of the other two stacks (Attachment F).

Due to the presence of the caustic tanks and the safety risks of working in the AAF System, the two remaining stacks have not been collapsed as of the date of this report. The AAF System is now a restricted area and the Estate continues to monitor the stacks as to the appropriate method and time to collapse them.

## ***Findings***

The findings of the collapse of the South Stack are:

- 1 The Estate has been monitoring the deteriorating conditions of the original four unlined, carbon steel, stacks since assuming control of the site in 2001. The stacks are located within the highly congested exhaust ducts, piping, support structures, and buildings of the AAF System.
- 2 Over the thirty years of existence of the stacks they have become unstable due to the buildup and corrosive properties of Scrubber Sludge, pH 9-10, on the unlined

- carbon steel stacks and the highly humid wet scrubbing system used to remove these emissions from the air.
3. In 2005, the northern most stack experienced a partial collapse and the 80-foot top portion of the 120-foot unlined carbon steel stack was successfully removed as it could be safely accessed by a high boom crane from outside the north end of the AAF System. The three remaining stacks were not able to be accessed.
  4. An effort to take down the remaining three stacks by demolishing the surrounding AAF System to provide safe access was undertaken in late August 2007 but was shutdown in early September, 2007 due to unrelated compliance issues. Additionally, IEPA added the requirement that prior to any demolition work the pre-existing Scrubber Sludge on the surface of the AAF System must be cleaned up to avoid commingling with Scrubber Sludge inside the AAF system, such as the stacks.
  5. Over the weekend of October 20/21, 2007, the South Stack collapsed, resulting in the release of the equivalent of two 55-gallon drums (< 1200 pounds) of a mixture of Scrubber Sludge and iron rust onto over 1/4 inch of pre-existing Scrubber Sludge (Scrubber Sludge that was generated/released during Chemetco's operation of the smelters prior to October 31, 2001.) on the surface of the AAF System (Photos #.4 and 5, Attachment A). The area of release was approximately 20 feet by 20 feet.
  6. Scrubber Sludge is the metallic oxides that were wet scrubbed from the exhaust emissions of the smelters in the AAF System during smelter operations. Scrubber Sludge is considered to be a hazardous substance due to the presence of lead and cadmium.
  7. The collapsed stack is laying on top of existing ducts in the AAF area in an unsafe manner (Photos # 1, 2, and 3, Attachment A and drawing, Attachment C).
  8. The collapsed stack potentially contains 4 to 5 times the amount of Scrubber Sludge/iron rust mixture that was released in the collapse.
  9. The collapse of the South Stack was due to structural failure of the unlined carbon steel materials of construction, exacerbated by over 30 years of corrosion from Scrubber Sludge and oscillation from wind loading despite wire cable constraints.
  10. The remaining two stacks are in imminent danger of collapsing (Photos # 3 and 4, Attachment B) and IEPA has granted permission to the Estate to perform controlled collapse of this stacks (Attachment F).
  11. Within the fall radius of the remaining two stacks (drawing, Attachment C) are two tanks that contain over 5000 gallons of 50% Caustic.
  12. Due to the unsafe conditions in the AAF area, the release by the South Stack has not been cleaned up.
  13. The AAF System is covered with concrete with concrete lined trenches and sumps to collect stormwater. IEPA has allowed the pumping of the stormwater and any contained Scrubber Sludge to the closed-loop stormwater retention system on the site.

### ***Conclusions***

The Estate has concluded that:

1. It is not safe to enter the AAF System area to perform clean up of the released Scrubber Sludge/iron rust mixture or remove the remainder of the collapsed stack.
2. The amount of released Scrubber Sludge/iron rust mixture does not significantly add to the pre-existing environmental contamination in this area or on the Chemetco site.
3. The two remaining stacks are in imminent danger of collapsing and releasing similar Scrubber Sludge/iron rust mixture and/or falling on caustic tanks and causing release of 5000 gallons of 50% caustic.
4. The amount of potential Scrubber Sludge/iron rust mixture released from the collapse of the two remaining stacks is not expected to significantly add to the pre-existing environmental contamination in the AAF System area or on the Chemetco site.
5. The requirement by IEPA "that pre-existing Scrubber Sludge on the surface of the AAF System area must be cleaned up prior to demolition work" prevents the use of the best measured response to this incident and the prevention of future incidents with the stacks.

### ***Preventive Measures***

The following table lists the potential preventive measures that could be taken along with an estimate of the likely effectiveness and the cost of each:

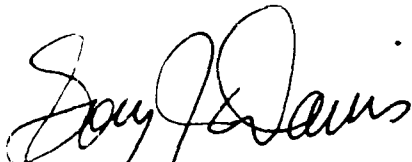
Preventive Measure	Likely Effectiveness	Cost	Timetable	Risk
1. Leave collapsed South Stack and release in place	1. Contain release of Scrubber Sludge inside AAF System area with pre-existing material	None	Now	1. Low-release does not significantly add to contamination in AAF System area.
2. Controlled collapse of two remaining stacks into AAF System area	2. Prevent exposure of clean up personnel to unsafe conditions.			2. High-AAF System area restricted due to unsafe conditions
	1. Contain release of Scrubber Sludge inside AAF System area with pre-existing material.	< \$2000	Within 60 days, depending on removal of caustic from tanks and weather.	1. Low-release does not significantly add to contamination in AAF System area
	2. Prevent collapse of stacks on Caustic Tanks and subsequent release of highly corrosive material			2. Low-prevents release of 5000 gallons of 50% caustic if stack(s) collapse on caustic tanks.
	3. Prevent exposure of clean up personnel to unsafe conditions.			3. High-AAF System area restricted due to unsafe conditions
3. Demolish AAF System, including removal of stacks (assuming salvage of scrap metals).	1. Remove potential for future collapse of two remaining stacks and releases.	\$0 (cost borne by demolition project) if no pre-existing clean up.	Within 90 days, depending on IEPA approval of Work Plan and weather.	1. None-risk of collapse and release removed.
	2. Remove and salvage stacks.			2. None-stacks removed.
	3. Clean up Scrubber Sludge/iron rust mixture along with remainder of AAF System since it will be safe to enter once demolition is complete	>\$200K if pre-existing clean up	Within 120 days depending on IEPA approval of Work Plan and weather.	3. None-clean up of AAF System area can be conducted under safe conditions

*Actions*

1. The Estate will continue to restrict personnel in the AAF System area due to the unsafe condition created by this incident and the potential collapse of the remaining two stacks.
2. The Estate will monitor the contamination level in the stormwater in the AAF System sump before pumping to the stormwater system onto site (normal practice) to insure that there has not been any increase in contamination due to this incident or any other releases from collapsed stacks.
3. The Estate will pursue getting the demolition project back on track to demolish the AAF System (Preventive Measure No. 3) and address this incident's release and potential releases from the other stacks.
4. The Estate will monitor the remaining two stacks and will perform a controlled collapse, if necessary, prior to startup of the demolition project.

If you have any questions or comments, please do not hesitate to contact me at the office at 618/254-4381 ext 372 or by cell at 636/346-0413.

Sincerely  
ESTATE OF CHEMETCO, INC.



Gary J. Davis, CHMM  
Site Project/EH&S Manager

CC: Laura Grandy, Trustee  
Penni Livingston, Livingston Law Firm  
Bert Cole, ENSR  
Chris Cahnovsky, Regional Mgr, IEPA-Collinsville Office  
Erin Rednour, IEPA

Attachments (6)

**ATTACHMENT A**  
**PHOTOS OF STACKS AFTER SOUTH STACK FELL**

ATTACHMENT A  
Photos of Stacks after South Stack Fell  
10-22-07

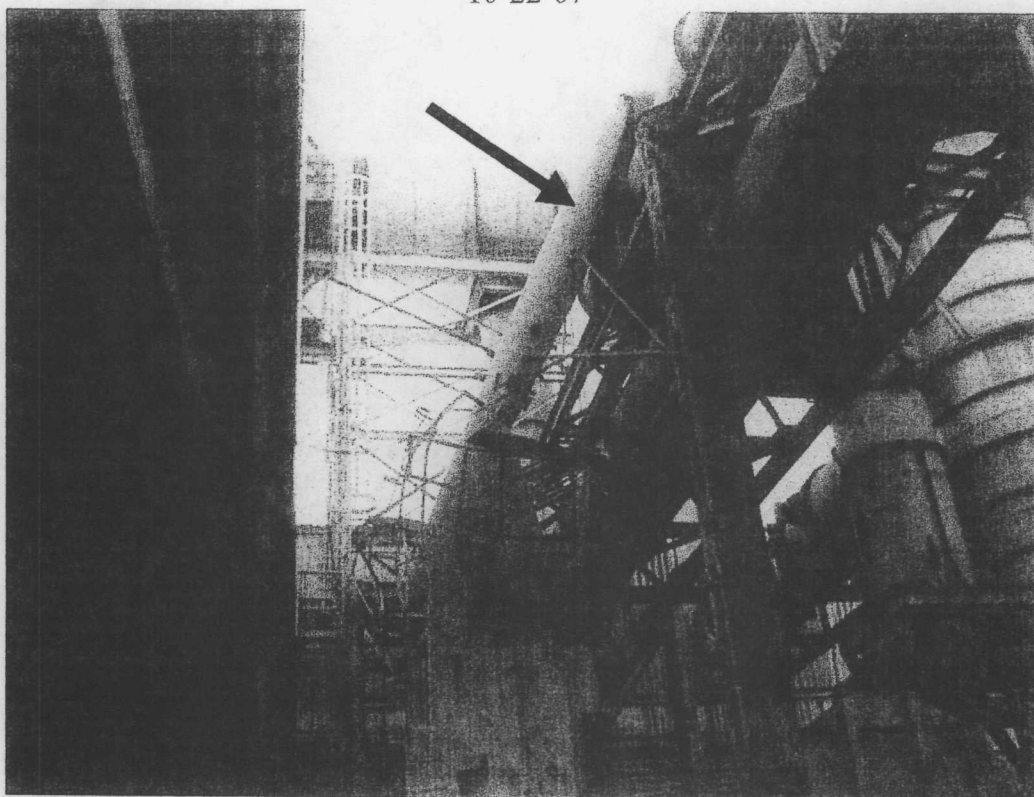


Photo 1 - Looking south at fallen South Stack



Photo 2 - Looking NW at fallen South Stack across top of AAF System



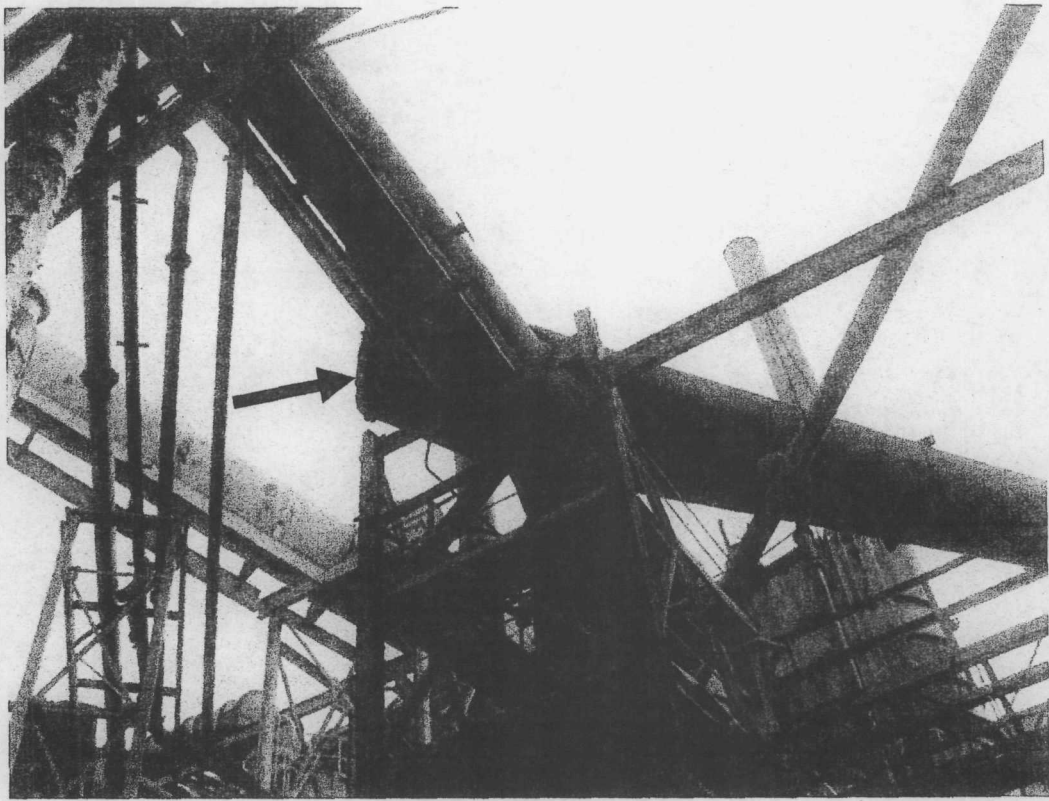


Photo 3 - Looking NE at top of fallen South Stack on top of AAF System duct

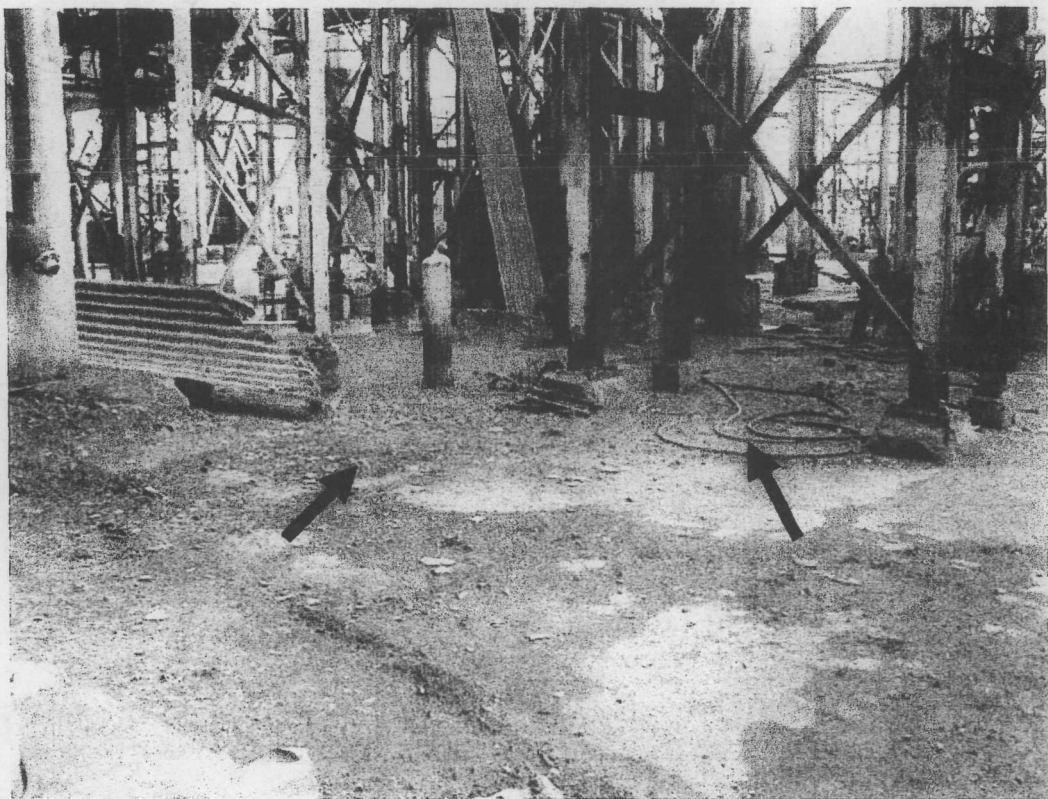


Photo 4 - Scrubber Sludge/Iron Scale debris located below top of fallen South Stack



Photo 5 - Closeup of pieces of scrubber sludge/iron scale debris from fallen South Stack

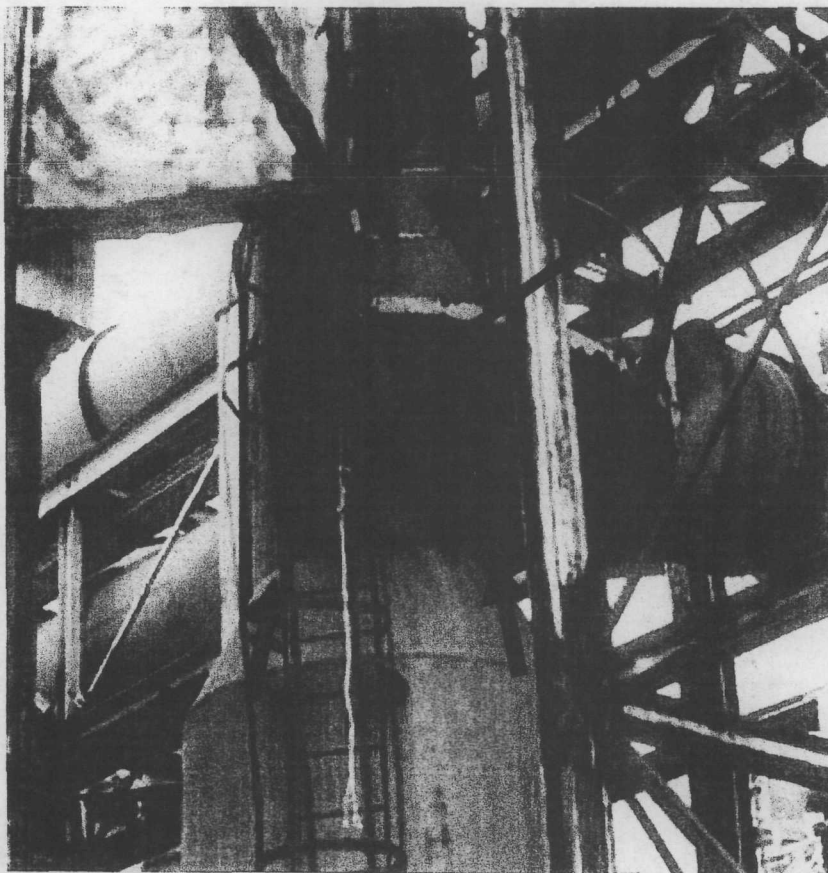


Photo 6 - Expanded metal tear on northeast/north side of Center Stack, probably due to force on this stack by falling South Stack before connecting wire cable pulled loose (same area that failed on South Stack.).

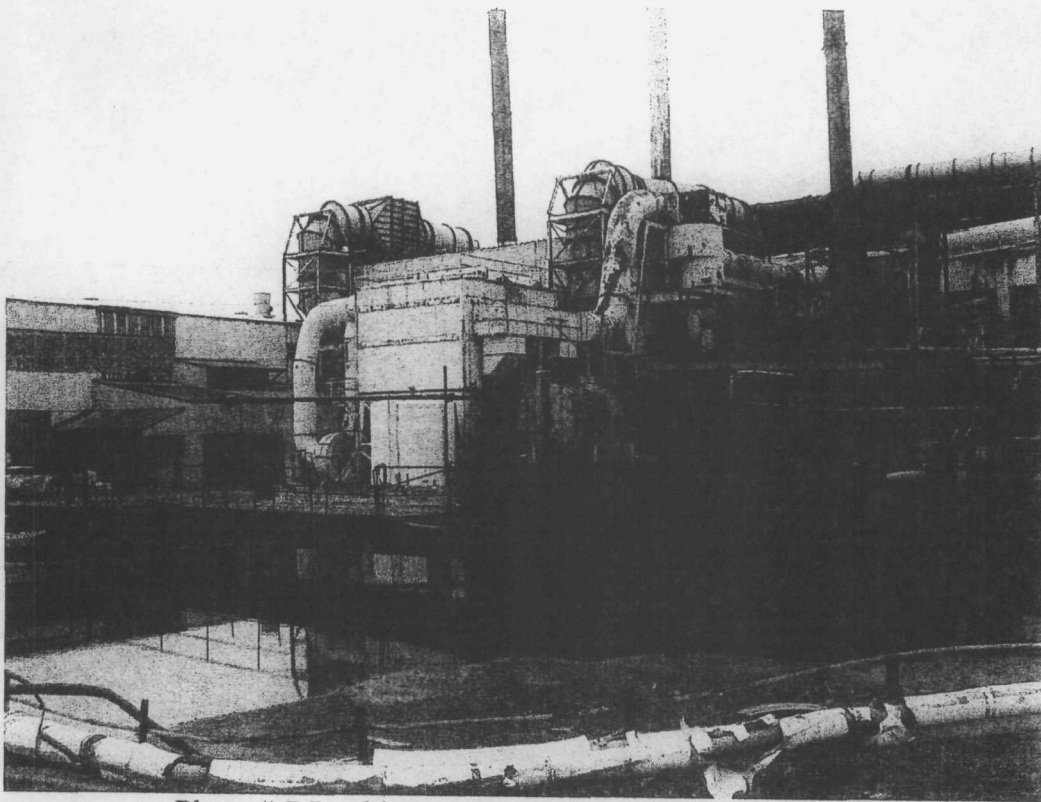


Photo # 7-Looking east at stacks in AAF System area

**ATTACHMENT B**  
**FAILURES ON STACKS AS OF 9-19-07**



**Attachment B**  
Failures on Stacks as of 9-19-07  
(Prior to South Stack Falling)

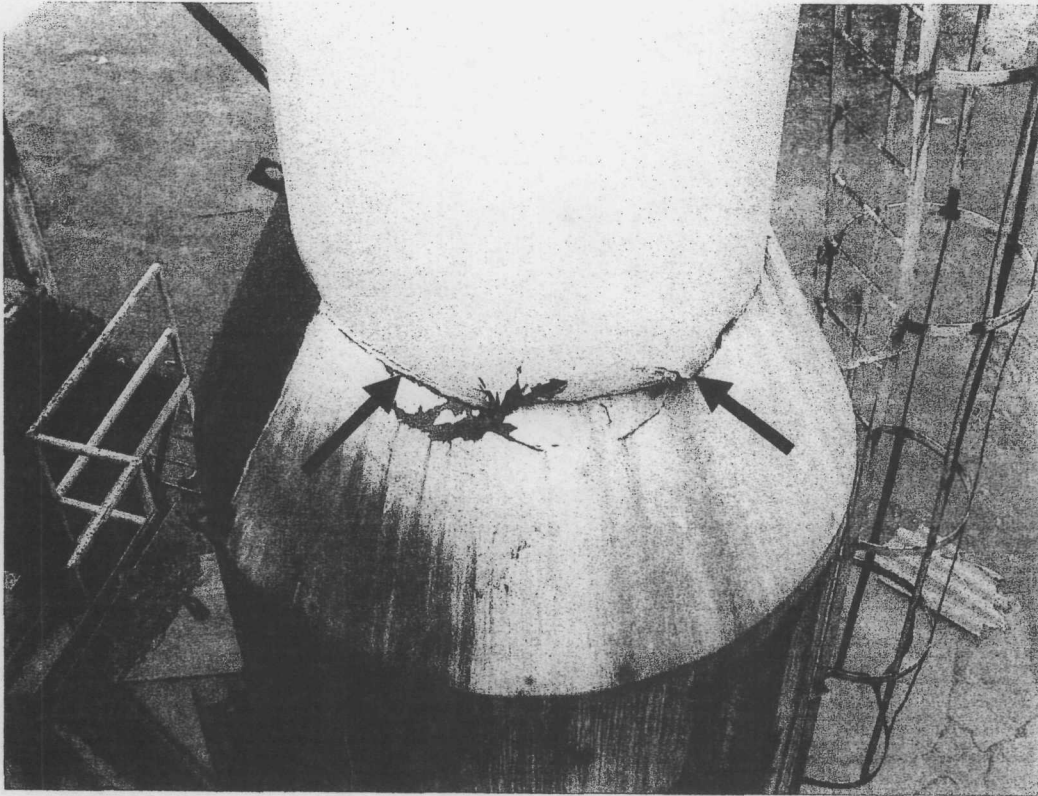


Photo 1 -Looking down from Rotofilter Bldg at South Stack stress failures.

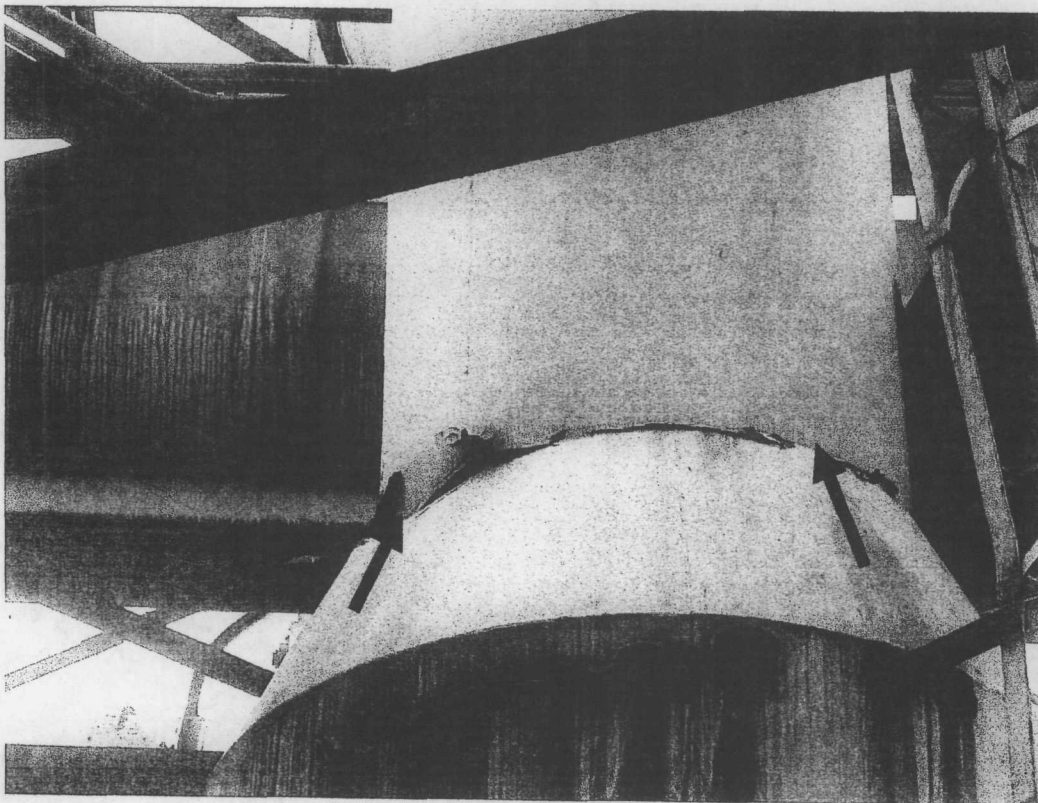


Photo 2 - Looking east at metal failure between stack and base on South Stack

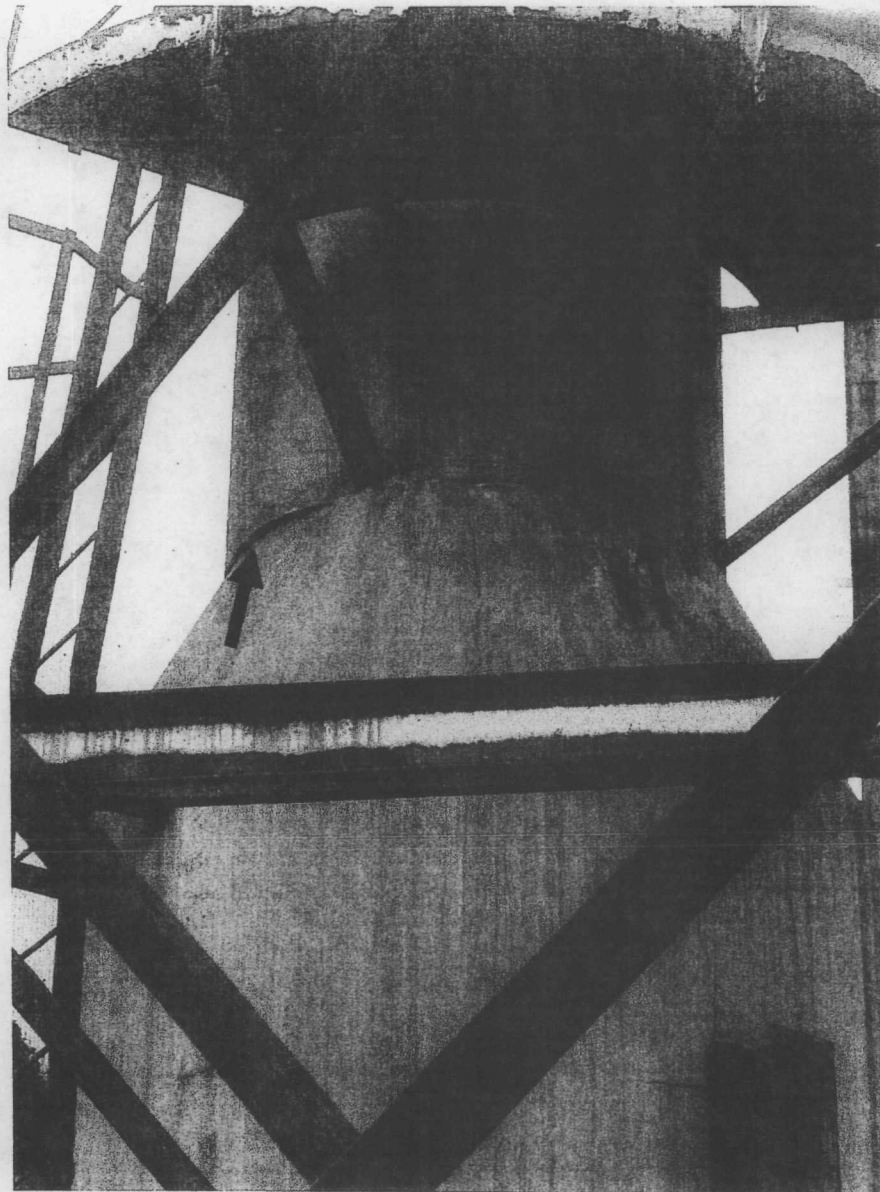


Photo 3 - Looking south at metal failure between stack and base on Center Stack

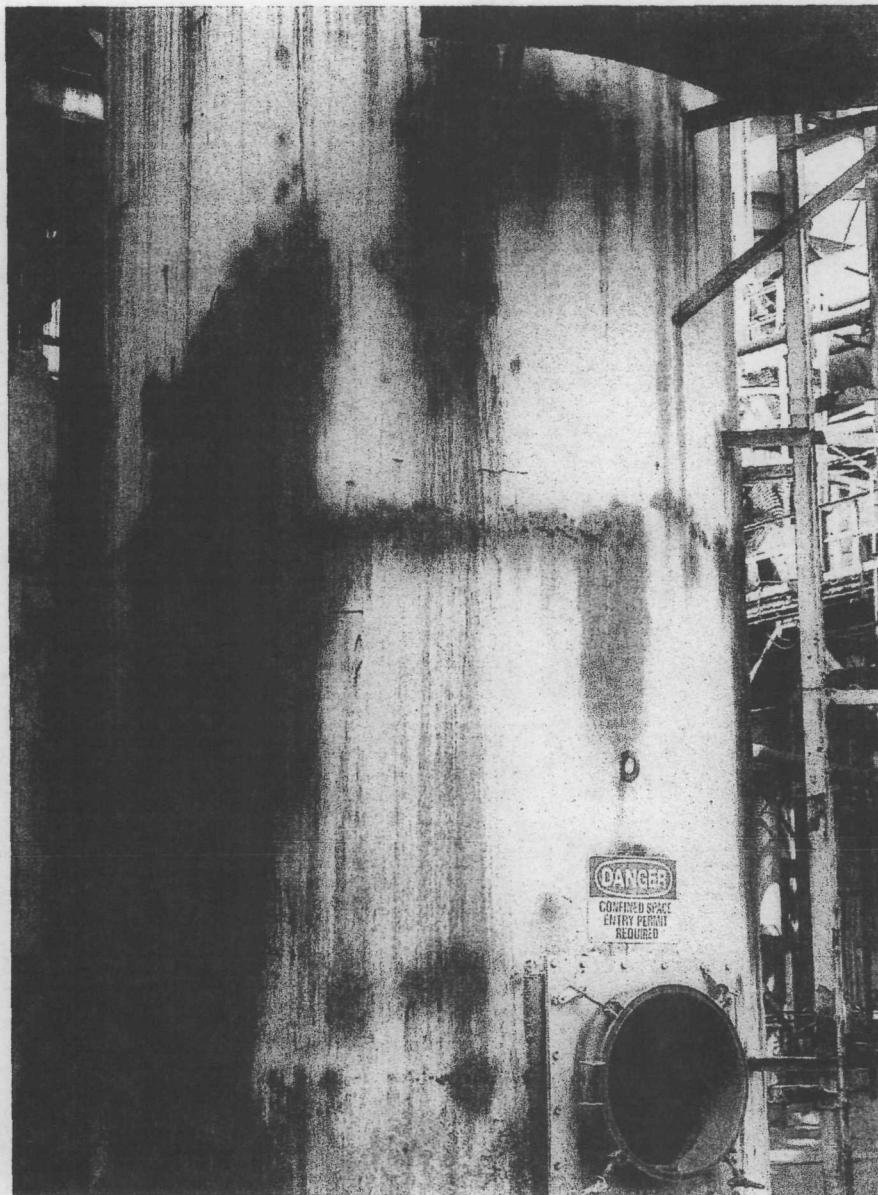


Photo 4 - View of stress and corrosion failures on base of South Stack.

**ATTACHMENT C**  
**AAF SYSTEM DRAWING**



# AAF System Stack Fall Area



Legend: > indicates surface flow direction

## Attachment C

Dock/Staging Area

North Polish Pit

South Polish Pit

Clean Material Demarcation Line

Cleaning Area

Final Prep/Sizing Area

Controlled Impact Area

Pump House

Initial Prep Area

North Center Bldg

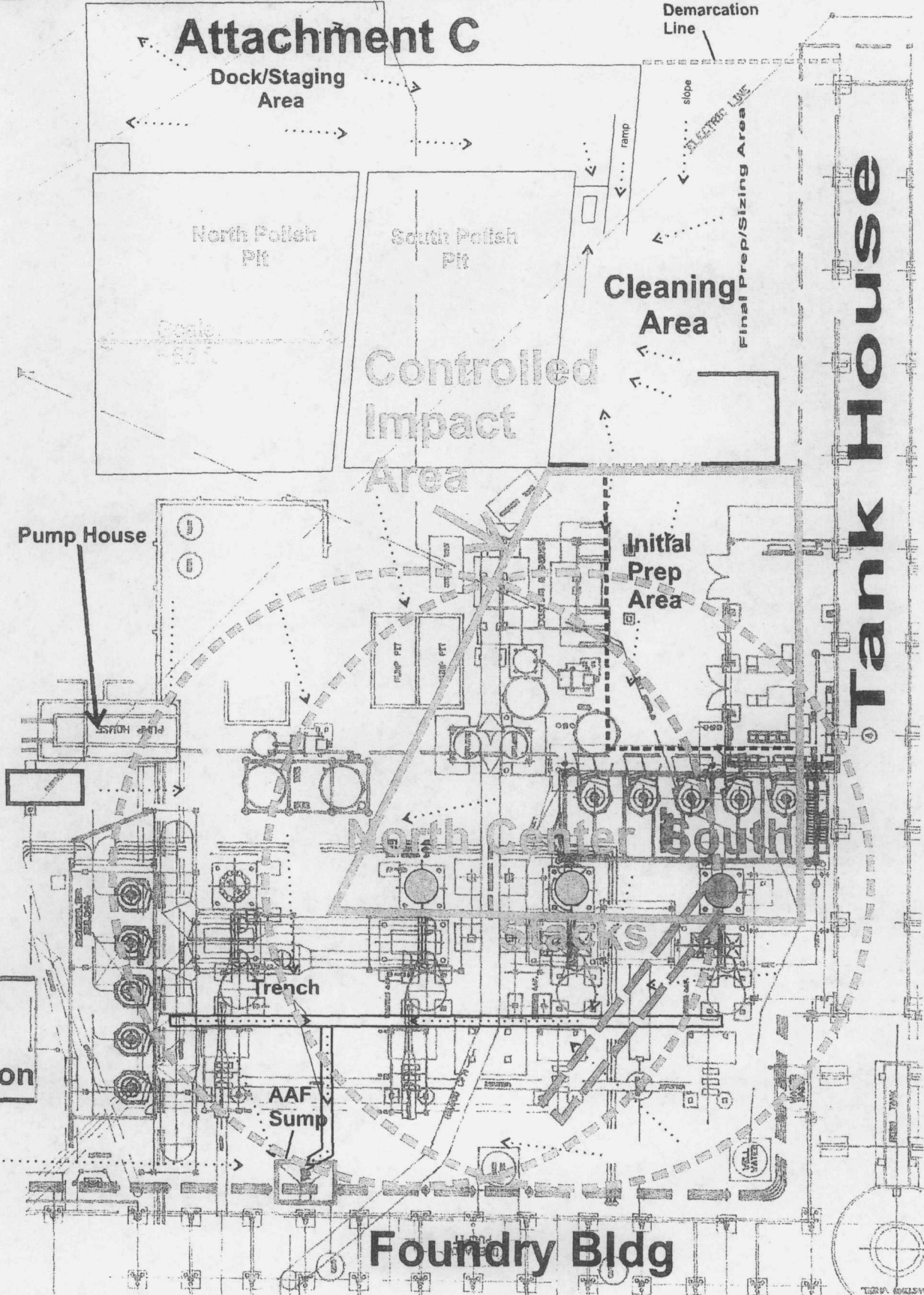
Elec Sub Station

Trench

AAF Sump

Foundry Bldg

Tank House



**ATTACHMENT D**  
**SCRUBBER SLUDGE MSDS**

# MATERIAL SAFETY DATA SHEET

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## Section 1: PRODUCT AND COMPANY IDENTIFICATION

Estate of Chemetco, Inc.  
3574 Chemetco Lane  
Hartford, IL USA 62048

Company Phone Number: (618) 254-4381 Ext 332  
Emergency Phone Number: (618) 254-4381 Ext 230

**Product Name:** Scrubber Sludge Filter Cake

Issue Date: 11/01/2004  
Supersedes Date: 10/24/2004

## Section 2: HAZARDS IDENTIFICATION

### EMERGENCY OVERVIEW

**Appearance/Odor:** Gray, mud-like granular solid. Odorless.

### WARNING

Product contains significant inorganic compounds of lead, a toxic substance, and <1% by wt. of inorganic compounds of cadmium and silver, toxic substances. Inorganic lead compounds are listed by the International Agency for Research on Cancer (IARC) as Group 2B, possibly carcinogenic to humans and lead is known by the State of California to cause reproductive harm to females and males and to cause birth defects. Nickel and Cadmium and their compounds have been identified as potential human carcinogens.

**Potential Health Effects:** See Section 11 for more information

**Likely Routes of Exposure:** Eye contact, skin contact, inhalation, and ingestion.

- Eye:** Minor irritation can occur due to mechanical action of granular materials. Lead Oxide: Eye contact can cause irritation.
- Skin:** Minor irritation can occur due to mechanical action of granular materials. Lead Oxide: Skin contact can cause irritation.
- Inhalation:** Zinc Oxide: Inhalation of high levels of zinc oxide may cause irritation to the respiratory tract. Inhalation may cause a flu-like illness (metal fume fever). This 24- to 48-hour illness is characterized by chills, fever, aching muscles, dryness in the mouth and throat and headache. Lead Oxide: Inhalation of high levels of inorganic lead compounds can have cumulative blood, neurologic, or reproductive hazards.
- Ingestion:** Lead Oxide: Ingestion of high levels of lead oxide may have cumulative blood, neurologic or reproductive hazards.

### Medical Conditions Aggravated by Exposure:

May cause more significant respiratory tract problems in people with severe respiratory conditions, such as asthma or emphysema. Skin irritation may be more significant in people with pre-existing skin conditions.

# MATERIAL SAFETY DATA SHEET

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**Target Organs:** Zinc Oxide: respiratory system; Lead Oxide: digestive tract, central nervous system, blood, and gingival tissue.

This product does contain Lead Oxide, a possible carcinogen, as listed by IARC. Cadmium and Nickel compounds are potential carcinogens as listed by OSHA.

This product is considered to be hazardous by the OSHA Hazard Communications Standard (29 CFR 1910.1200).

**Potential Environmental Effects:** (See Section 12 for more information)

## Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS #	% by Wt.
Zinc Oxide (ZnO)	1314-13-2	21-31
Silica (SiO <sub>2</sub> )	7631-86-9	13-19 Free silica, not amorphous
Copper Oxide (Cu <sub>2</sub> O)	1317-39-1	7-11
Lead Oxide (Pb <sub>3</sub> O <sub>4</sub> )	1314-41-6	6-10
Calcium Oxide (CaO)	1305-78-8	5-6
Iron Oxide (Fe <sub>2</sub> O <sub>3</sub> )	1309-37-1	4-6
Alumina (Al <sub>2</sub> O <sub>3</sub> )	1344-28-1	3-5
Sodium Hydroxide (NaOH)	1310-73-2	2-5
Tin Oxide (SnO)	21651-19-4	2-4
Nickel Oxide (NiO)	1313-99-1	<0.5
Cadmium Oxide (CdO)	1306-19-0	<0.5
Trace Components		<5.0
Water		18-25

## Section 4: FIRST AID MEASURES

**Eye Contact:** Immediately flush eyes with water for at least 15 minutes. Get medical attention.

**Skin Contact:** Remove contaminated clothing and wash before reuse. Wash skin with soap and water. Get medical attention if irritation develops.

**Inhalation:** Move to fresh air. Get IMMEDIATE medical attention.

**Ingestion:** DO NOT induce vomiting. Get IMMEDIATE medical attention.

## Section 5: FIRE FIGHTING MEASURES

**Flammability:** Non-flammable solid

**Flash Point:** >200°F

**Autoignition Temperature:** N/A

**Explosive Limits:** Upper: N/A Lower: N/A

**Extinguishing Media:** Use suitable extinguishing media for surrounding materials and type of fire.

**Protection of Firefighters:** Firefighters must wear full face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. Fumes from fire are hazardous. Isolate runoff to prevent environmental pollution.

**Products of Combustion:** When heated to decomposition metal oxides may emit toxic fumes.

## Section 6: ACCIDENTAL RELEASE MEASURES

**Personal Protection:** Use personal protection recommended in Section 8.

**Environmental Precautions:** This product contains components that are water pollutants. Do not let spilled or leaking product enter waterways.

**Methods for Containment:** Mist with water to keep damp. Avoid using too much water.

**Methods for Clean-up:** Sweep dry or semi-dry product into a pile and shovel into a container. If wet, use wet vacuum or slurry pump if large quantity involved and place in an isolated area or open container to dry.

**Other Information:** Spills of product do not need to be reported to the National Response Center.

## Section 7: HANDLING AND STORAGE

### Handling

Keep away from heat, open flame, strong acids, or strong oxidizers. Do not get in eyes. Do not breathe dust from product. Avoid contact with skin. Wash thoroughly after handling and especially before eating or smoking.

### Storage

Keep container closed when not in use and stored in well ventilated area. Product residue may remain in empty Super Sacks. Observe all labeling precautions until container is cleaned, reconditioned or destroyed (For disposal, see Section 13: Disposal Considerations).

## Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### Exposure Guidelines:

The scrubber sludge has not been evaluated as to exposure. The following chemicals in the scrubber sludge have exposure limits but the risk of exceeding these limits is based on the level of that chemical in the scrubber sludge and its availability for exposure.

Zinc Oxide:	TWA: 5.0 mg/m <sup>3</sup> (OSHA); TWA: 2.0 mg/m <sup>3</sup> (ACGIH)
Copper Oxide	TWA: 0.1 mg/m <sup>3</sup> (OSHA); TWA: 0.2 mg/m <sup>3</sup> (ACGIH)
Lead Oxide	TWA: 0.05 mg/m <sup>3</sup> (OSHA/ACGIH)
Calcium Oxide	TWA: 5.0 mg/m <sup>3</sup> (OSHA); TWA: 2.0 mg/m <sup>3</sup> (ACGIH)
Iron Oxide	TWA: 10.0 mg/m <sup>3</sup> (OSHA); TWA: 5.0 mg/m <sup>3</sup> (ACGIH)
Alumina	TWA: 5.0 mg/m <sup>3</sup> (OSHA/ACGIH)
Sodium Hydroxide	TWA: 2.0 mg/m <sup>3</sup> (OSHA)
Tin Oxide	Not established (OSHA); TWA: 2.0 mg/m <sup>3</sup> (ACGIH)
Nickel Oxide	Not established (OSHA/ACGIH), Ni as dust: TWA: 1.0 mg/m <sup>3</sup> (OSHA); Ni as insoluble inorganic compounds: TWA: 0.1 mg/m <sup>3</sup> (ACGIH)
Cadmium Oxide	Not established (OSHA/ACGIH), Cd as dust: TWA: 0.005 mg/m <sup>3</sup> (OSHA);

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TWA: 0.002 mg/m<sup>3</sup> (ACGIH)

**Engineering Controls:** Provide local exhaust ventilation.

**Eye/face Protection:** Prevent eye/face contact, such as wearing chemical splash goggles and face shield.

**Skin Protection:** Prevent skin contact, such as wearing tightly woven clothing with long sleeves and pants to cover the lower body, boots or suitable coverage of ankles and feet, head cover, and impermeable gloves.

**Respiratory Protections:** Use NIOSH-approved air-purifying respirator with an air protection factor of at least 10 (APF=10) and that meets the air-purifying requirements of any other operation in the area where the product is being handled.

**General Hygiene Considerations:** Wash thoroughly after handling and especially before eating or use of tobacco products. Remove wet or contaminated clothing.

## Section 9: PHYSICAL AND CHEMICAL PROPERTIES

**Color:** Gray  
**Odor:** Damp, metallic  
**Odor Threshold:** Not available  
**Physical State:** Damp, granular solid  
**pH:** 7.5-8.0  
**Boiling Point:** 1970°C  
**Melting Point:** 1560°C  
**Flash Point:** >200°F  
**Flammability (solid):** Not applicable  
**Density:** 104.0 lbs/ft<sup>3</sup> or 1,666 kg/m<sup>3</sup> (approximately)  
**Solubility in Water:** Negligible

## Section 10: STABILITY AND REACTIVITY

**Stability:** Stable under ordinary conditions of use and storage.

**Conditions to Avoid:** None

### Incompatible Materials:

**Zinc Oxide:** Aluminum, chlorinated rubber, magnesium, linseed oil, strong oxidizers, hydrogen peroxide, and strong acids.

**Lead, Nickel, Cadmium and Silver Oxides:** Strong oxidizers, hydrogen peroxide, and strong acids.

**Hazardous Decomposition Products:** Toxic fumes from metal oxide decomposition.

**Possibility of Hazardous Reactions:** Remote possibility of hazardous reactions as long as product does not experience extreme heat or prolonged contact with incompatible materials.

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## Section 11: TOXICOLOGY INFORMATION

No toxicological information available on product but the following information is available for the components:

### Immediately Dangerous to Life and Health (IDLH) Concentrations (ACGIH):

The scrubber sludge has not been evaluated as to IDLH. The following chemicals in the scrubber sludge have IDLH but the risk of exceeding these limits is based on the level of that chemical in the scrubber sludge and its availability for exposure.

Zinc Oxide:	500 mg/m <sup>3</sup>
Copper Oxide	100 mg/m <sup>3</sup>
Lead Oxide	Possible Carcinogen, Concentration not established
Calcium Oxide	25 mg/m <sup>3</sup> (ACGIH)
Iron Oxide	2,500 mg/m <sup>3</sup> as iron oxide fume or dust (ACGIH)
Alumina	Not established
Sodium Hydroxide	10 mg/m <sup>3</sup> (ACGIH)
Tin Oxide	Not established
Nickel Oxide	Potential Carcinogen, 10 mg/m <sup>3</sup> (ACGIH)
Cadmium Oxide	Potential Carcinogen, 9 mg/m <sup>3</sup> (ACGIH)

## Section 12: ECOLOGICAL INFORMATION

The product has components that include toxic metals which could impact the ecology if spilled in significant quantities. Any spilled product should be contained and placed in sealed plastic containers or bags for recycling or disposal.

## Section 13: DISPOSAL CONSIDERATIONS

Disposal: Spilled or contaminated product should be disposed according to local, state, and/or federal regulatory requirements. If spilled or contaminated product is disposed as a waste, USEPA Regulations and IEPA Regulations classify it as a hazardous waste and require disposal by a facility that is approved to dispose of hazardous waste.

## Section 14: TRANSPORTATION INFORMATION

Hazardous Material:	Yes, due to presence of lead, a toxic metal, above RQ of 10 lbs in shipping package.
Hazardous Material Name:	Environmentally Hazardous Substance, n.o.s.
Hazard Class:	9
Reportable Quantity:	Not established
U.N. No.:	3077
ORM #.:	ORM-E
Placard Requirement:	Class 9 Placard
Shipping Label:	None required
Waste Manifest:	None required
Packaging:	III-Super Sacks for bulk shipment
Net Wt. Per Package:	3,862 lbs. ± 2% per Super Sack
Other:	Membrane press dewatered filter cake with the consistency of mud-like granular solids.

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## Section 15: REGULATORY INFORMATION

**USEPA Hazardous Waste: No.** This substance is a by-product, not a waste, of secondary copper smelting operations, therefore, it is not regulated under RCRA.

**USEPA TSCA Inventory:** Yes, this product is regulated under TSCA and must maintain records of shipments and report in the reporting year every four years of the quantity shipped that exceeded 10,000 lbs in the year prior to the reporting year.

**USOSHA:** This product is considered to be hazardous by the OSHA Hazard Communications Standard (29 CFR 1910.1200).

## Section 16: OTHER INFORMATION

**Process Generating the Product:** Pyrometallurgical copper refining where zinc is volatilized and blown out of the copper bath by the use of oxygen and air. The gases are cleaned by a wet scrubber system. Caustic is added to neutralize the slurry water and force precipitation of metals.



**ATTACHMENT E**  
**LETTER TO IEPA-EMERGENCY PERMISSION FOR REMOVAL OF STACKS**

# Estate of Chemetco, Inc.

3754 Chemetco Lane • Hartford, IL 62048  
Office: (618) 254-4381 • Fax: (618) 254-0138  
www.chemetcoestate.com

October 23, 2007

Erin Rednour  
IEPA  
1021 North Grand Avenue East  
P.O. Box 19276  
Springfield, IL 62794-9276

Thomas J. Martin, Esq.  
USEPA Region 5  
77 W. Jackson Blvd  
Chicago, IL 60640

Subject: Emergency Permission for Removal of Two 120-foot Carbon Steel  
Stacks in AAF Area, Chemetco, Inc., Hartford, IL

Dear Mrs. Rednour and Mr. Martin:

## ***Emergency Permission***

The Bankruptcy Estate of Chemetco, Inc. (Estate) is notifying the Illinois Environmental Protection Agency (Illinois EPA) of the status of the three former air emissions exhaust stacks (stacks) located inside the air emissions system (AAF System) at the former Chemetco, Inc. (Chemetco) site in Hartford, Illinois.

On October 10, 2007, it was observed that the South Stack may not be stable and could collapse, potentially causing the collapse of the Center and North Stacks (This condition was observed by Mrs. Rednour on her visit to the site.)

On October 12, 2007 the Estate had a structural assessment of the three remaining stacks performed by John Peradotti, PE, SE, Chief Structural Engineer, Hurst-Rosche Engineers, Inc. The findings of this assessment are provided as an attachment to this letter. The assessment confirmed that the South Stack has evidence of failed welds, severe section loss from corrosion, localized areas of buckling at the base of the stack, and that the stack appears to be leaning to the south. It was also observed that the cable connecting the South Stack to the Center Stack is pulled tight, and that failure of this cable will likely cause the South Stack to fail. The assessment recommended that the steel stacks should be removed or repaired as soon as possible.

At some time during the weekend of October 20 and 21, 2007 the South Stack collapsed. The stack collapsed to the northwest and landed on the underlying ductwork. The stack caused some minor damage to the duct work (See photos, Attachment A, and location on AAF System drawing, Attachment C.). The collapsed stack appears to have flattened during the impact and it is estimated that approximately two 55-gallon drums of scrubber sludge/iron scale was released due to the collapse. In addition, the weld failure on the Center Stack, Photo 6, between the stack and the base (same area as failure on South Stack) appears to have been damaged by the collapse and is now almost halfway around the stack. The Estate notified the Illinois EPA of the collapse as soon as observed on October 22, 2007, Incident Report No. H2007-1413. The buckling on the North Stack appears a little worse and the stack is less stable.

As such, until the threat of collapse of the remaining stacks is corrected no cleanup, demolition or facility maintenance work or activities can be undertaken in the AAF System or the potential area of impact from falling stacks.

The Estate is in the process of preparing an AAF System Demolition and Scrapping Work Plan (Work Plan) to be filed with the entry of a Partial Consent Order to start the demolition of the AAF System. The demolition action will be under CERCLA consistent with the NCP to protect the health and welfare of the public, specifically demolition workers, and to control the release to the environment, to the extent practicable, of a hazardous substance (scrubber sludge) caked on the inside of the stacks.

### ***Background***

The two remaining 120 foot high, unlined, carbon steel exhaust stacks are located in the middle of the AAF System (See stack photos, Attachments A and B and AAF System drawing, Attachment C). The stacks are in various stages of advanced metal fatigue and corrosion such as to make them a safety hazard to personnel and surrounding structures, including an electrical substation. The stacks will eventually collapse in an uncontrolled manner as evidenced by the collapse of the South Stack. The stacks would release some scrubber sludge caked on the interior of the stacks and in the bases, and potentially scrubber sludge located in surrounding structures.

The Estate previously removed a fourth stack in 2006 due to the same concerns. The fourth stack was located in the northern portion of the AAF System and was accessible by crane. During removal activities, the crane supported the stack such that it could then be safely approached. The stack was then removed in pieces to control the release of residual scrubber sludge to the extent practicable.

Since removal of the fourth stack, the Estate has attempted to retain a demolition contractor that will safely remove the three remaining stacks, and be paid from the sale of scrap metal generated by the demolition. However, the location and condition of the two remaining stacks in the middle of the AAF System presents challenges to the demolition process. The Estate is currently interviewing potential demolition contractors to identify contractors who can safely and effectively manage the demolition of the remaining two stacks.

### ***Alternative Evaluation***

The Estate has performed an evaluation of the alternatives and options for the AAF System.

#### ***Do Nothing-***

The do nothing alternative would result in the uncontrolled collapse of the stacks anywhere in the 80 foot radii shown on the AAF System drawing, Attachment B. The timing of the collapse would be unknown. In addition, the impact of falling stacks could severely damage the Foundry and/or Tank House Buildings; the AAF System and potentially release additional scrubber sludge located inside the stacks, system ducts, piping and equipment and also render the system unstable and a major safety concern for future demolition and cleanup by the Estate; damage an electrical substation; and/or damage the site's main pumping station for stormwater control and fire water. Therefore, the Estate does not believe this is an acceptable alternative.

#### ***Stabilize Stacks***

Stabilization of the stacks would require work to be performed in the AAF system area, and in the area of potential uncontrolled stack collapse. The structural assessment of the stacks indicates that the stacks are not stable enough to risk placing crane operators and workers attaching stabilizing cables and braces in the area of potential uncontrolled stack collapse. Additionally, it is not known if any method of stabilization involving welding to or attaching braces to the stacks would be effective due to the extent of corrosion of the stacks. Therefore, the Estate does not believe this is an acceptable alternative.

### ***Controlled Demolition of Stacks***

Demolition of the stacks would be performed by a qualified contractor to permanently correct the threat of uncontrolled stack collapse. Due to the problematic location of the stacks in the middle of the AAF System, the Estate will evaluate the feasibility and safety of several demolition alternatives. Demolition alternatives may include:

- Cutting and removal of the stacks in pieces;
- Controlled directional collapse of the stacks using mechanical methods.

[Note: Controlled demolition of the stacks using explosives was considered but found not acceptable due to the close proximity of other structures and the potential release of over 1 ton of scrubber sludge/iron debris in the base and inside the stacks.]

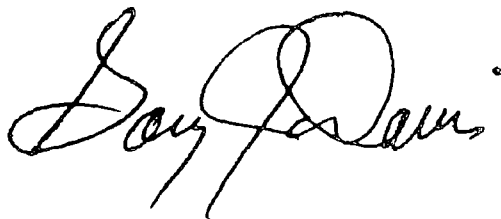
Other demolition methods may also be considered if suggested by experienced contractors. The primary concern of the Estate is that all stack demolition activities are performed in a manner that protects the health and safety of workers. Other concerns, such as the quantity of scrubber sludge released, will also be considered during the assessment of the demolition methods.

In the event that the remaining stacks collapse before the Work Plan is developed and approved, the following actions will be taken:

1. The Estate will notify IEPA and others of the uncontrolled release of scrubber sludge,
2. The Estate in conjunction with IEPA will conduct an inspection and assessment of the situation
3. The Estate will prepare and submit a report of the incident to IEPA and a work plan for future action or cessation of work.

If you have any questions or comments, please do not hesitate to contact me at the office at 618/254-4381 ext 372 or by cell at 636/346-0413.

Sincerely  
ESTATE OF CHEMETCO, INC.

A handwritten signature in black ink, appearing to read "Gary J. Davis". The signature is fluid and cursive, with a large loop for the 'G' and 'D'.

Gary J. Davis, CHMM  
Site Project/EH&S Manager

CC: Laura Grandy, Trustee  
Penni Livingston, Livingston Law Firm  
Bert Cole, ENSR  
Mike Roubitchek, Asst. Counsel, IEPA  
Chris Cahnovsky, Regional Mgr, IEPA-Collinsville Office

Attachments (3)

**ATTACHMENT A**  
Photos of Stacks after South Stack Fell  
10-22-07



Photo 1 - Looking south at fallen South Stack

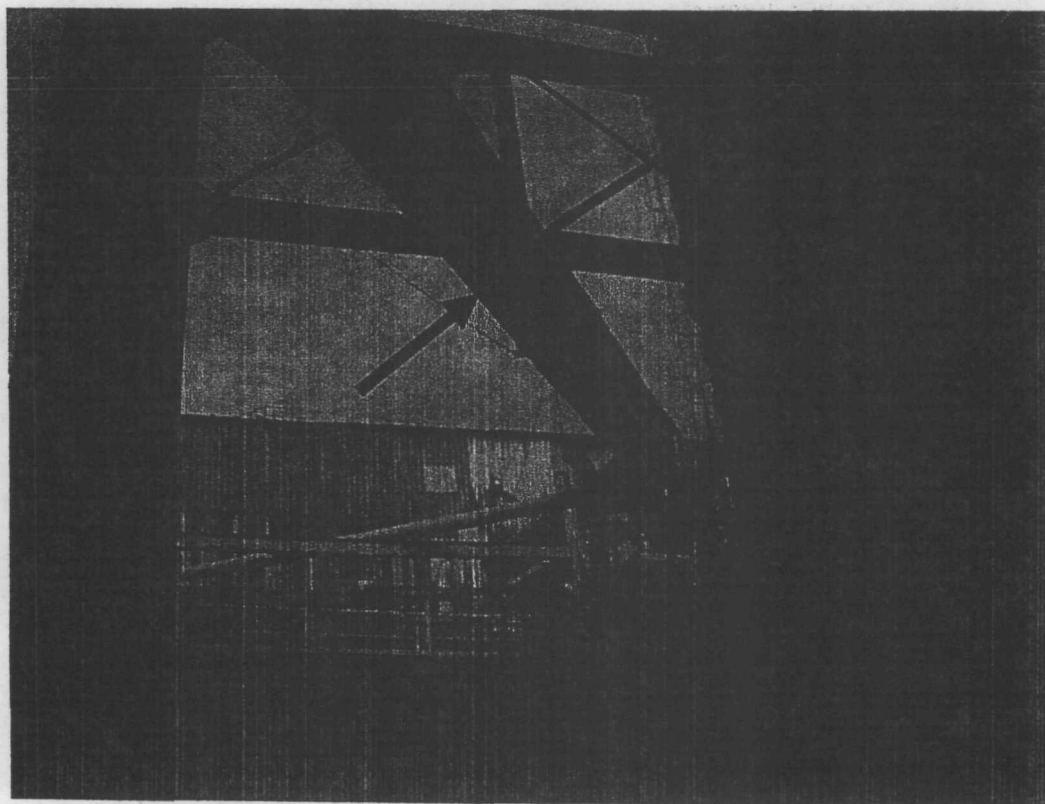


Photo 2 - Looking NW at fallen South Stack across top of AAF System

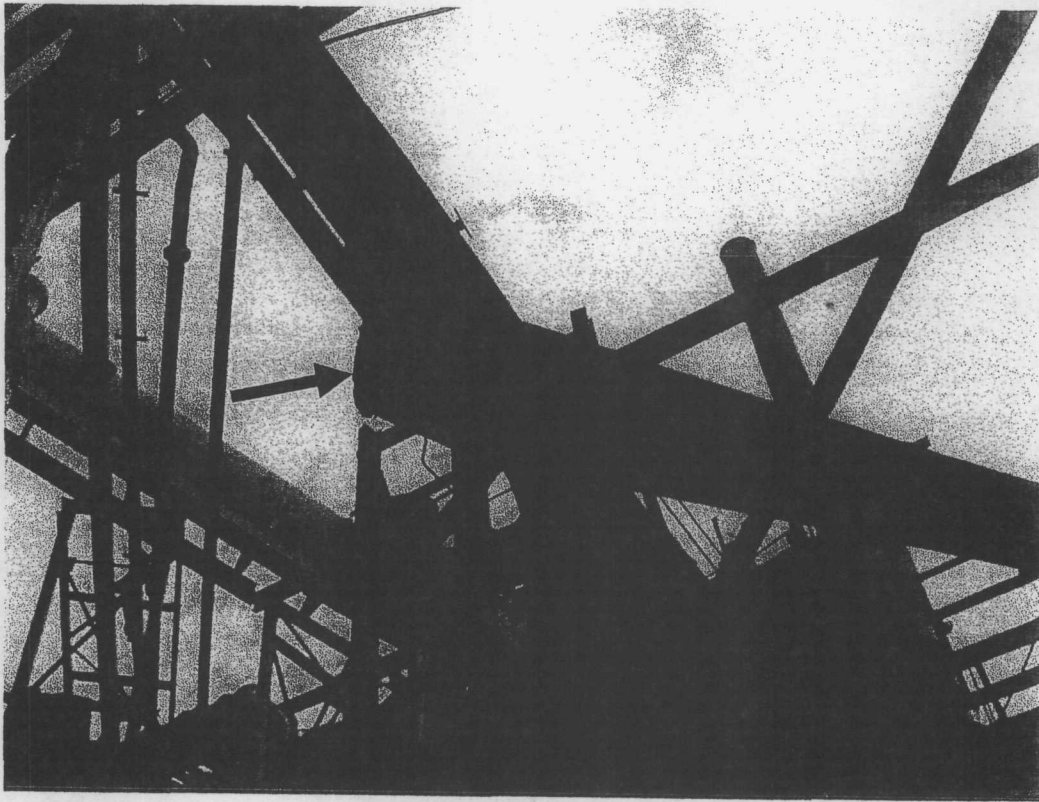


Photo 3 - Looking NE at top of fallen South Stack on top of AAF System duct



Photo 4 - Scrubber Sludge/Iron Scale debris located below top of fallen South Stack



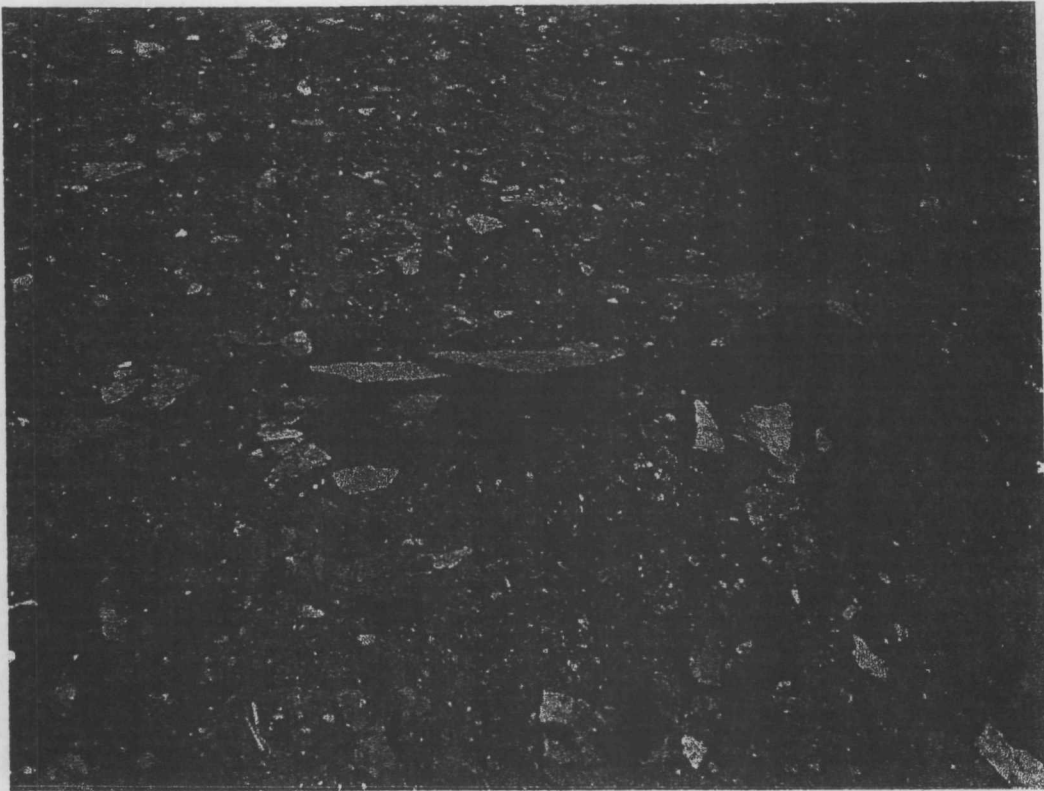


Photo 5 - Closeup of pieces of scrubber sludge/iron scale debris from fallen South Stack

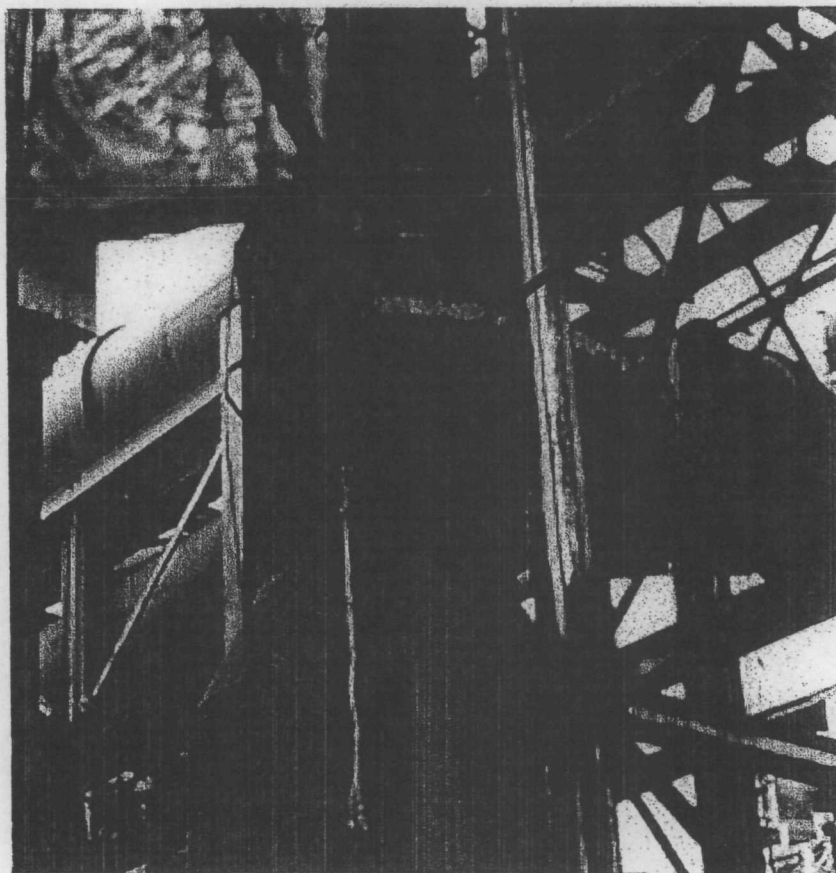


Photo 6 - Expanded metal tear on northeast/north side of Center Stack, probably due to force on this stack by falling South Stack before connecting wire cable pulled loose (same area that failed on South Stack.).



## Attachment B

Failures on Stacks as of 9-19-07  
(Prior to South Stack Falling)

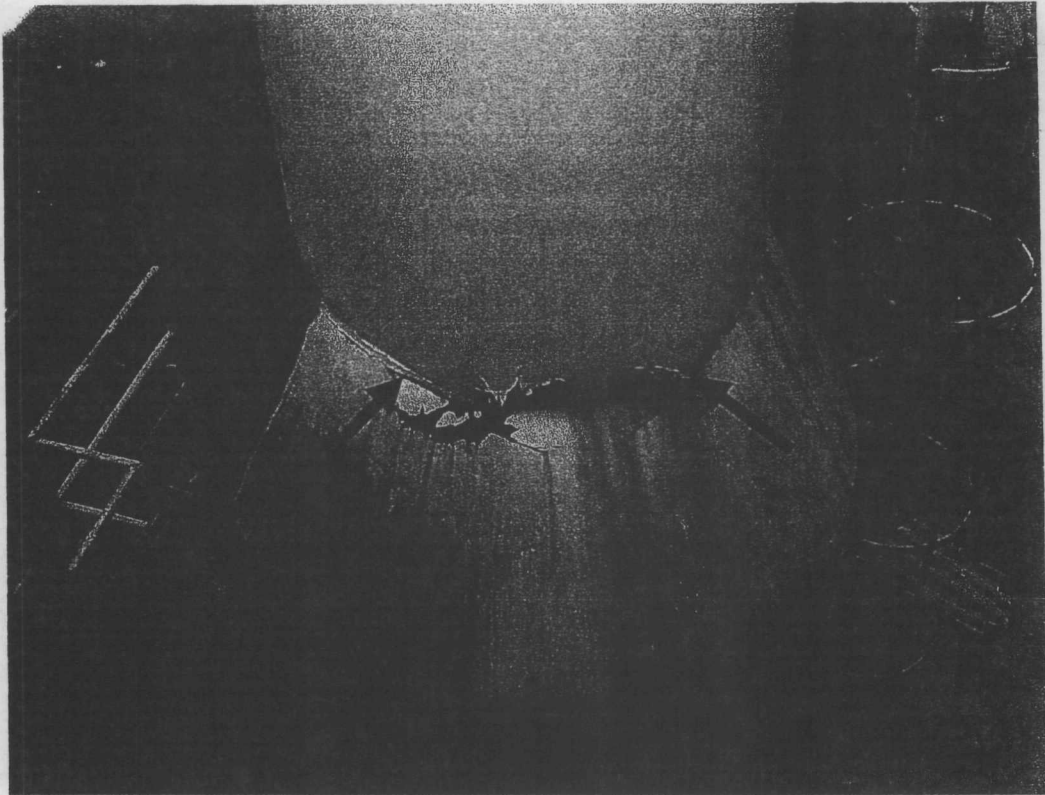


Photo 1 -Looking down from Rotofilter Bldg at South Stack stress failures.

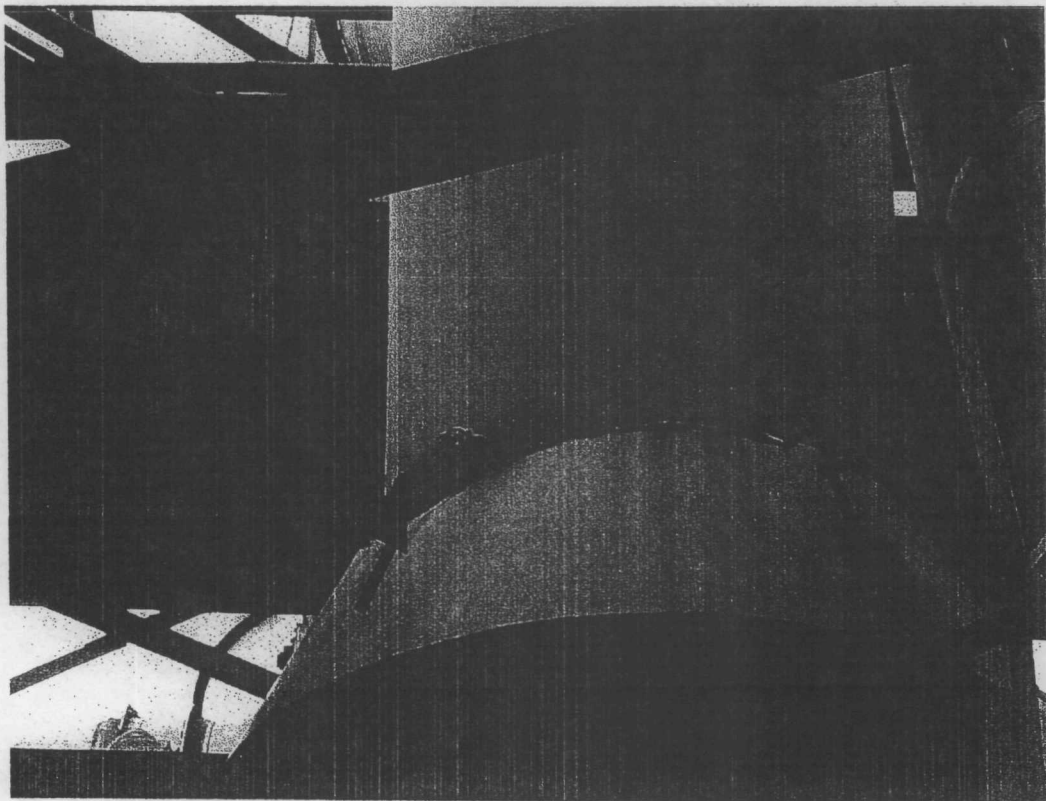


Photo 2 - Looking east at metal failure between stack and base on South Stack

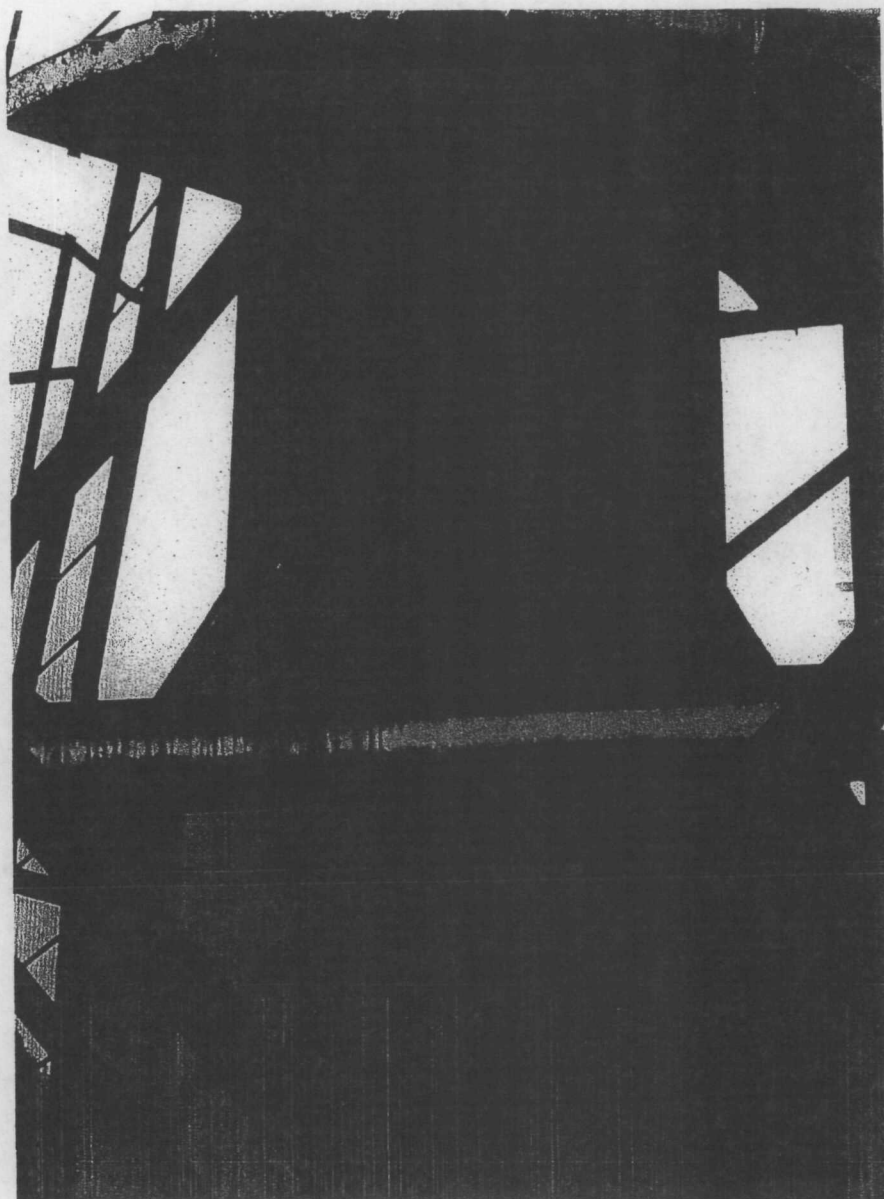


Photo 3 - Looking south at metal failure between stack and base on Center Stack

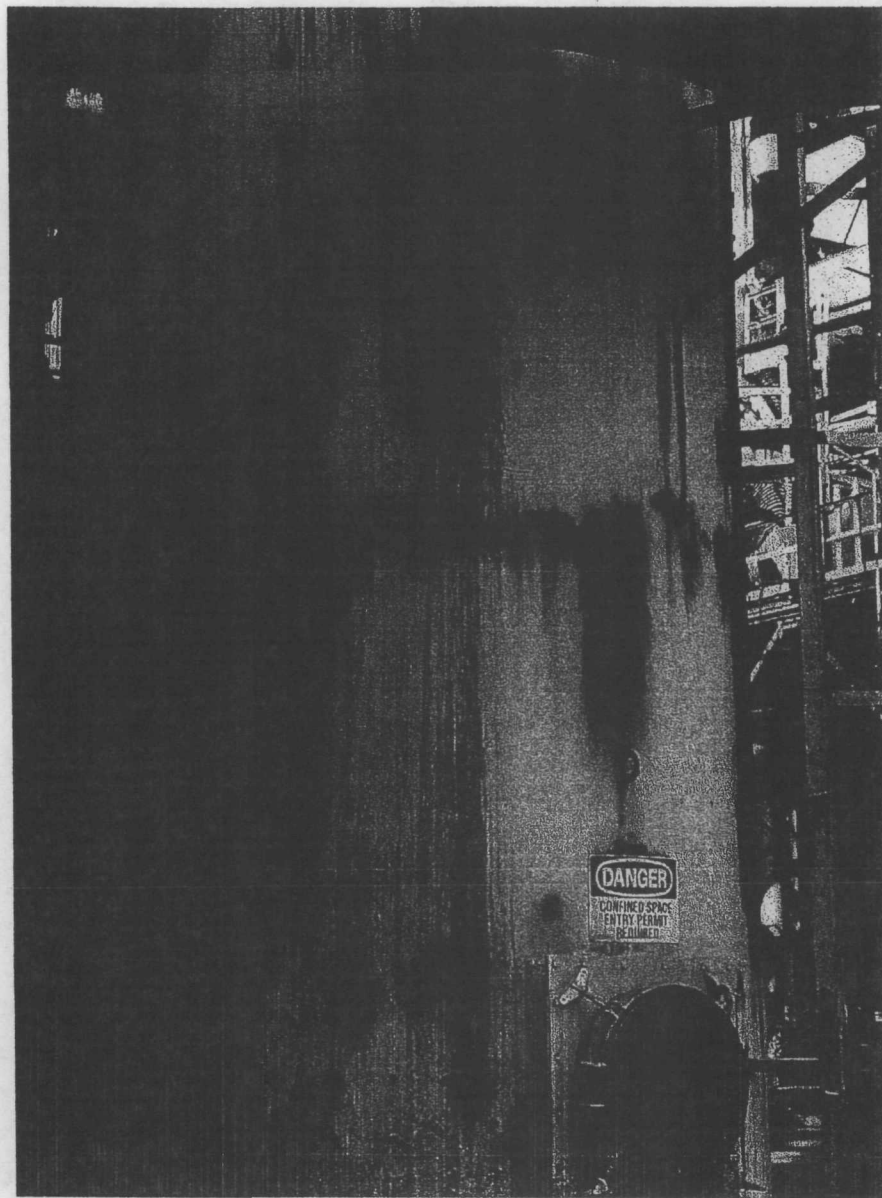


Photo 4 - View of stress and corrosion failures on base of South Stack.



# Attachment C



Legend: > indicates surface flow direction

**AAF System  
Stack Fall Area**

Clean Material  
Demarcation  
Line

North Polish  
Pit

South Polish  
Pit

Cleaning  
Area

Scale:  
65 ft

**Potential  
Stack Fall  
Areas**

**Controlled  
Impact  
Area**

Pump House

Initial  
Prep  
Area

**Former North Center South**

**Stacks**

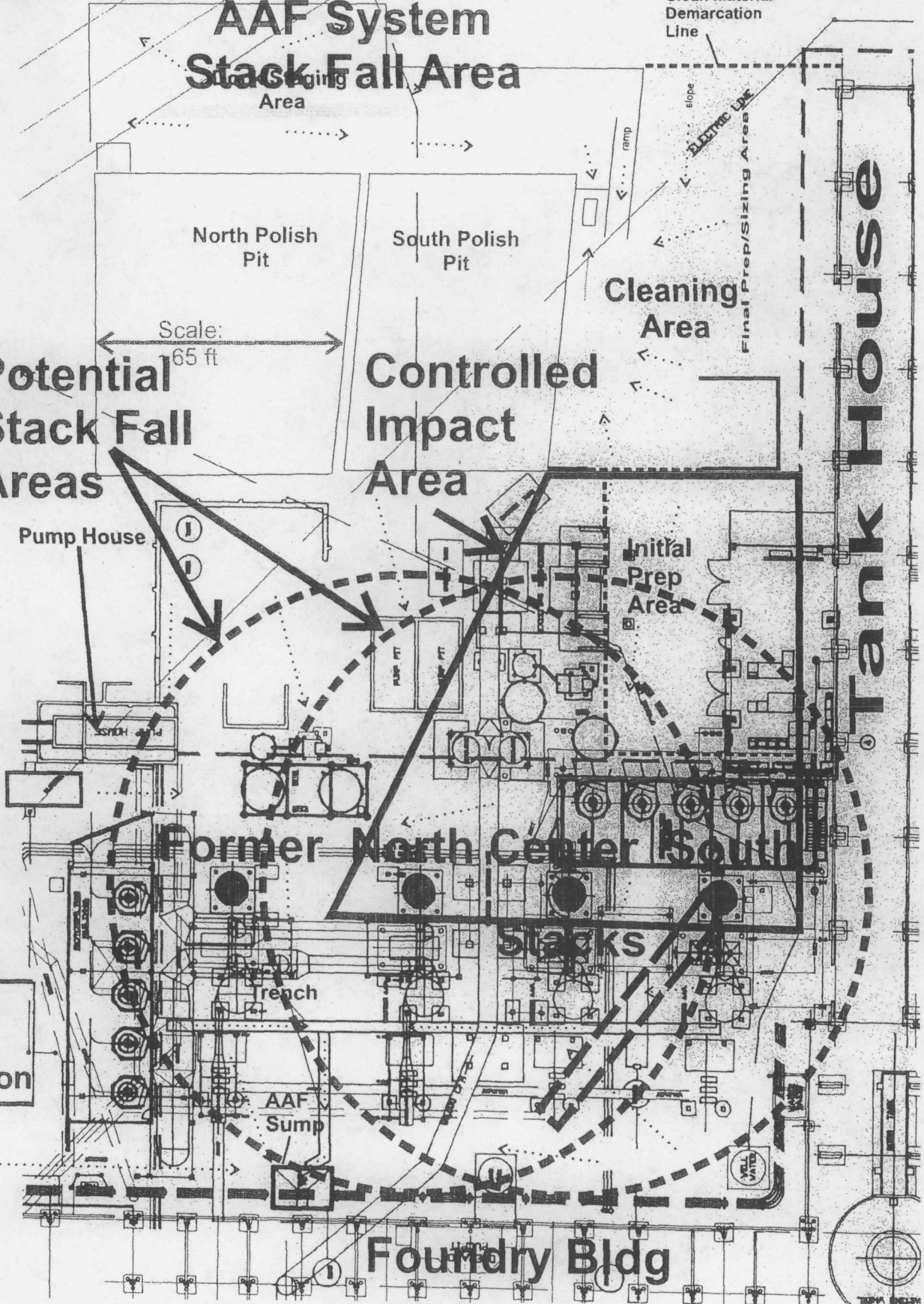
**Elec  
Sub  
Station**

trench

AAF  
Sump

**Foundry Bldg**

**Tank House**



**ATTACHMENT F**  
**LETTER FROM IEPA-PERMISSION TO COLLAPSE STACKS**

October 25, 2007

Estate of Chemetco, Inc.  
Attn: Mr. Gary J. Davis, CHMM, Site Project/EH&S Manager  
3754 Chemetco Lane  
Hartford, Illinois 62048

Re: LPC # 1198010003 - Madison County  
Hartford/Chemetco, Inc.  
Emergency Permission for Removal of Two 120 – foot Carbon Steel  
Stacks in AAF Area

Dear Mr. Davis,

The purpose of this letter is to respond to a request dated October 23, 2007 from the Bankruptcy Estate of Chemetco, Inc. (Estate) to remove or repair the two remaining former air emissions exhaust stacks (stacks) located inside the air emissions system (AAF System) as soon as possible.

The Illinois Environmental Protection Agency (Illinois EPA) agrees that the stacks could be a potential safety hazard. Therefore, due to the conditions of the two remaining stacks, the Illinois EPA agrees that the work to bring the stacks safely to the ground should proceed. The work to bring the stacks safely to the ground to address this situation will still need to comply with Attachment A of the Seal Order but will not require a RCRA permit. However, in accordance with 35 Ill. Adm. Code 703.124(a)(2) & (b), and 724.101 (g)(8)(C), the exemption from RCRA for addressing emergency situations does not extend to work done after the immediate response is completed. Therefore, scrapping of the stacks is not included in the exemption. Any and all work other than bringing the stacks safely to the ground will need to be included within the AAF System Demolition and Scrapping Work Plan that will be submitted for review at a later time.

The Illinois EPA would like to be kept apprised of the status and arrangements for the remaining two stacks and may wish to be present when the stacks are lowered to the ground. Please notify myself at 217-785-8725 in a timely manner so that arrangements may be made to be in attendance. Please also keep Chris Cahnovsky, CHMM, Field Operations Section, of the Collinsville Regional Office apprised of the situation at 618-346-5120.

If there are any questions concerning this letter or if I may be of any further assistance, please feel free to contact me.

Sincerely,

Erin Rednour, Project Manager  
Illinois Environmental Protection Agency  
1021 North Grand Avenue East  
P.O. Box 19276  
Springfield, Illinois 62794-9276